

Indian Maritime University
(A Central University, Govt of India)
B Sc (Nautical Science)
July 2018 End Semester Examinations
Semester-III
UG21T3302 - Ship Stability-I

Duration:3 Hrs

Date: 04.07.2018

Max Marks:70 Marks

Pass Marks:35 Marks

Q.No 1 is compulsory. Answer any 6 out of the remaining 7 questions

Use of non-programmable scientific calculator is permitted.

Q1. Explain in brief

(5 x 2 Marks)

- a) Displacement
- b) FWA
- c) Block coefficient
- d) Metacentric height.
- e) Free surface effect.

Q2) 600 Tonnes of cargo was discharged from a vessel from the

Upper deck 11m above the keel. If the original KG and

displacement respectively were 6m and 12600 tonnes, calculate the final

KG.

(10 marks)

Q3)M.V HINDSHIP at a displacement of 14240 tonnes, had a FSC of

0.087m. Find the FSC after having discharged 3210 tonnes of

cargo, assuming the tank soundings remained unchanged.

(10 marks)

Q4) Explain the three different states of equilibrium of ship. (10 marks)

Q5) A ship of $W = 18000t$, $KG = 7.75m$

discharges $1500t$ ($6.0m$ above the keel and $3m$ port of the centre line)

and loads $500t$ ($10m$ above the keel and $4m$ port of the centre line).

Cargo was then shifted as follows:

$500t$ upwards $2m$ and to the starboard $4m$

$800t$ downwards $2m$ and to port $3m$

If the final $KM = 8.935 m$, find the list in Degree (10 marks)

Q6) A vessel has a deep tank on starboard side $12m$ long, $9m$ wide which

is partly full of coconut oil of $RD = 0.72$, If $W = 12000T$, $KM = 9M$ and

$KG = 8.5M$, find the GM fluid. (10 marks)

Q7) A ship of $10000t$ displacement has a GM of $0.4m$. Calculate the moment of

statical stability when she is heeled by 5° . (10 marks)

Q8) M.V Hindship is in condition no.2. Find the shift of her COG if 100 tonnes

of cargo is shifted transversely over a distance of $10m$. Also find the

resulting list in degree. (10 marks)